REAL OPTIONS

Lecturer: Prof. Marc CHESNEY, UNIZH
First lecture: June 11, 2009
Location: USI LUGANO
Time: Thu. June 11, 10:30 – 13:15 and 14:15 – 17:30, Fr. June 12, 9:00 -12:00 and 13:15 – 16:15.
Thu. June 18, 10:30 – 13:15 and 14:15 – 17:30, Fr. June 19, 9:15 -12:15 and 13:30 – 16:30 pm
Language: English
Course duration: 24 hours.

Grades: The final grades will be based on an oral or a written examination.

Contents:

- The Limitations of the Traditional Net Present Value (NPV) Approach
- Dynamic Optimization under Uncertainty
- Real Options: the Basic Models of the Monopolistic Firm
- Lévy Processes and American Option Pricing: Applications to Real Options
- Real Options and Exotic Options
- Real Options and Competition
- Irreversible Investment Decisions in Presence of Incomplete Information
- Real Options and Environmental Finance

Description of the course:

Investment (and disinvestment) decisions, which are crucial for economic growth, have a few essential characteristics: they are partially or totally irreversible, can be possibly delayed and are made in a risky environment. Taking these characteristics into consideration generates incentives to wait for better information before investing. More generally, it yields investment rules which are radically different from those corresponding to the standard Net Present Value (NPV) approach. The latter approach does not meet requirements, as it ignores the flexibility inherent in decision-making processes and the dynamic aspects of project selection.
The course aims firstly at explaining the basic real options models, after which more recent models will be presented. These include the introduction of competition and incomplete information into the real options framework. The use of the Real Options approach in Environmental Finance will also be presented. Finally, a particular focus on Lévy processes will be given. As the introduction of possible discontinuities is essential in some models, a clear understanding of Poisson processes is important. A standard background in stochastic calculus is required.

Literature:

BOOKS

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   The MIT Press, 1991.

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   Prentice Hall, 2000.

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8 KARATZAS I. and S. SHREVE
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11 ROSSETTO S.
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Journal of International Financial Markets, Institutions and Money, 13:451 479, 2003.

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Journal of Financial Economics, 17:113-141, 2004.

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